

# Reclamation Manual

## Directives and Standards

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**Subject:** Administering Water Conservation Plans Pursuant to Statutory and Contractual Requirements

**Purpose:** To clarify and update existing Bureau of Reclamation (Reclamation) policy and procedures for administering water conservation plans.

**Authority:** Section 210(b) of the Reclamation Reform Act of 1982 (RRA). Also, most water service contracts and repayment contracts executed after July 17, 1979, contain provisions requiring contractors to prepare and submit water conservation plans.

**Contact:** Water Resources Office, D-5500

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1. **Who Must Develop a Water Conservation Plan.** The following districts must develop and submit water conservation plans, either individually or collaboratively with one or more other districts:
  - A. All agricultural and municipal and industrial (M&I) districts, including paid-out districts<sup>1</sup>, that have executed repayment or water supply contracts with the United States pursuant to:
    - (1) Federal reclamation law<sup>2</sup>.
    - (2) The Water Supply Act of 1958.
    - (3) The Warren Act<sup>3</sup>.
  - B. All districts that have specific requirements for development of water conservation plans through contract or other duly executed agreements or regulations pertaining to Federal water projects. Requirements in contracts, other agreements, or regulations may be more rigorous or prescriptive than those for RRA Section 210(b).
  - C. The following are excepted from the requirement to prepare a district water conservation plan under the RRA:
    - (1) Districts with contracts that are not developed pursuant to Federal reclamation law (i.e., Small Reclamation Projects Act and Water Conservation and Utilization Act

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<sup>1</sup> Under RRA a paid-out district is relieved from the ownership and full-cost pricing provisions of Reclamation law but is still subject to the water conservation provisions.

<sup>2</sup> Contracts pursuant to Federal reclamation law include Distribution System Loan Act and Rehabilitation and Betterment Act repayment contracts. The Small Reclamation Projects Act and Water Conservation Utilization Act are not part of Federal reclamation law.

<sup>3</sup> Those Warren Act contracts which are repayment or water service contracts as defined in Section 202(1) of the RRA.

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contracts) unless these contracts contain specific provisions requiring the preparation of water conservation plans.

- (2) Districts that receive small amounts of water from Federal projects as defined by the following<sup>4</sup>:
  - (a) Districts that receive only irrigation water from any Federal reclamation project, and deliver said water to less than 2,000 acres of land<sup>5</sup>.
  - (b) Districts that receive only M&I water from any Federal reclamation project, and provide said water to fewer than 3,300 people<sup>5</sup>.
  - (c) Districts that receive a combination of irrigation and M&I water amounting to less than an annual average of 2,000 acre-feet<sup>5</sup> from any Federal reclamation project.
- (3) Districts that have only a temporary contract of 1 year or less<sup>4</sup>.
- (4) Districts who are already complying with specific water conservation planning requirements under the following Federal statutes and programs:
  - (a) Section 207 of the Central Utah Project Completion Act (Titles II through VI of Public Law 102-575, 106 Stat. 4605, 4616).
  - (b) Section 3405(e) of the Central Valley Project Improvement Act (Title XXXIV of Public Law 102-575, 106 Stat. 4706, 4713).
  - (c) Yakima River Basin Water Enhancement Project (Title XII of Public Law 103-434).
- (5) Districts that have prepared water conservation plans, or are meeting alternative standards, for other Federal or State agencies, that fulfill the intent of Section 210(b) of the RRA, as determined by the Regional Director. Water conservation plans or other evidence of participation in such alternative programs should be submitted to Reclamation for review and comment.

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<sup>4</sup> Users of small amounts of water and temporary contractors must still comply with contract provisions which, typically, require monitoring and reporting on water use.

<sup>5</sup> Acreage, population, and acre-feet amounts are to be based on the average for the most recent 5 years.

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### 2. Submitting and Updating Water Conservation Plans.

- A. Water conservation plans required by the RRA were originally due by early 1987 (Commissioner's memorandum of January 5, 1985). Plans are to be updated and resubmitted on a 5-year cycle.
- B. Through Reclamation's Water Conservation Field Services Program (WCFSP), Area Offices will begin working immediately with districts to encourage, facilitate, and assist in the development and updating of water conservation plans. Area Offices will inform districts of the status of their existing water conservation plans, when updated plans should be submitted to Reclamation, and what kind of assistance may be available through the WCFSP. Reclamation recognizes that a transition period will be required to receive updated plans from all affected districts and reestablish the 5-year cycle for all plans. Each Area Office will establish follow-up procedures and schedules to prioritize available assistance, and have current plans from all districts as soon as practicable. Each fiscal year, Area Offices will develop a follow-up schedule for planning activities with districts, and annually report to the Commissioner through the Regional Director on the status of plan updates, technical and financial assistance provided, and conservation measures implemented by districts. Area Offices will ensure that all districts will have the opportunity to have plans updated no later than 5 years from the date of this policy.

### 3. Review and Comment on Water Conservation Plans. Reclamation has a responsibility under RRA to encourage water conservation and will make its expertise and guidance regarding water conservation planning and implementation available to districts through the WCFSP. The following procedures address Reclamation's responsibilities in this area:

- A. Reclamation will review each water conservation plan submitted by a district. Reclamation will not approve district plans, but will provide advisory comments and recommendations to districts on their identified goals and measures, including the potential for environmental effects related to measures proposed in the plan. Reclamation's WCFSP will be available to provide assistance to districts in the preparation of effective water conservation plans, including how to incorporate appropriate environmental considerations into the planning process.
- B. Plan preparation and submission by a district, in and of itself, does not require compliance under the National Environmental Policy Act (NEPA) or the Endangered Species Act (ESA). Also, informal review of water conservation plans by Reclamation is not a major Federal action under NEPA. Environmental review and compliance pursuant to NEPA and ESA are Federal responsibilities, and will occur, as appropriate,

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for any site-specific implementation of plan elements where subsequent Federal action is involved.

- C. Reclamation's Water Conservation Field Services Program will be available to provide technical and financial assistance to districts in the preparation of effective water conservation plans, including how to incorporate appropriate environmental considerations into the planning process.
4. **Recommended Content of Water Conservation Plans.** This section outlines Reclamation's recommendations for developing water conservation plans. It provides information for Reclamation staff to assist districts in preparing water conservation plans, as well as for reviewing and commenting on the content of district-prepared plans. To supplement this information, Reclamation has prepared a guidebook for use by districts in preparing water conservation plans. The guidebook is entitled, *Achieving Efficient Water Management: A Guidebook for Preparing Agricultural Water Conservation Plans*.
- A. An effective water conservation plan consists of a summary report and associated supporting materials that set forth a district's water conservation program. A water conservation plan examines existing water management practices, evaluates alternative water management strategies, identifies appropriate water conservation measures to be implemented, and establishes timetables for plan implementation.
  - B. Reclamation recommends that a plan contain information in sufficient detail to identify and evaluate the district's water management problems and opportunities for improvements in water use efficiency. The level of detail contained in a water conservation plan should be commensurate with each district's individual situation, size, and complexity, and should support a district's decision as to which water conservation measures it will implement.
  - C. Water conservation measures are those methods, techniques, policies, practices, procedures, activities, institutional arrangements, structural projects, physical facilities, equipment, or devices which reduce water consumption, reduce water withdrawal or diversion, reduce water loss or waste, improve water use efficiency, or increase water recycling or reuse.
  - D. The following nine elements are recommended by Reclamation for inclusion in a district's water conservation plan. It is Reclamation's view that these elements represent the primary components of an effective water management and conservation planning process. This approach is intended to support formulation of water conservation goals, identification of appropriate and economically feasible conservation measures to meet

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those goals, and development of a time schedule for implementation. These elements are:

- (1) Description of the district.
- (2) Inventory of water resources.
- (3) Water management problems, opportunities, and goals.
- (4) Existing water conservation measures.
- (5) Fundamental water conservation measures.
- (6) Additional water conservation measures.
- (7) Selected measures and projected results.
- (8) Environmental review.
- (9) Implementation schedule and budget.

E. It is the content, not the format, of the water conservation plan that is most important. The following represent Reclamation's suggested approach to addressing each of these elements:

**(1) Description of the District.**

- (a) An initial overall description is important in providing a general understanding of the district, including its geographic and hydrologic setting; the nature of its water management facilities, operations, and policies; and the nature of existing contracts and water rights.
- (b) The description includes appropriate overviews of the district's history, location, size, topography, soils, natural environment, cultural resources, and climate; water supplies and uses; storage, distribution, and drainage facilities; water measurement and accounting procedures; water pricing and billing practices; water shortage allocation policies; and operation and maintenance program.

**(2) Inventory of Water Resources.**

- (a) An inventory of water resources addresses where, when, and how water is used within the district. A quantitative inventory of the district's water resources is important in providing a basis for identifying water management problems and opportunities, establishing realistic water conservation goals, selecting appropriate conservation measures, and evaluating improvements within the district.

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- (b) The inventory of water resources considers the quantity and quality of water sources, the amounts and kinds of water uses within the district, and the quantity and quality of drainage from the district. It is recommended that such information be presented in the form of an overall water budget.

(3) **Water Management Problems, Opportunities, and Goals.**

- (a) Establishment of definite goals with measurable objectives is fundamental to an effective water conservation program. Water management and conservation efforts should be a means of achieving specific goals such as: saving money, increasing production, reducing soil erosion, eliminating drainage problems, improving water supply and delivery reliability, or freeing up water supplies for additional uses. Goals are defined in such a way as to allow achievements to be measured.
- (b) The goals of the plan are based on an evaluation of water management problems associated directly with district operations (i.e., water supply, distribution, control structures, measurement capability, system capacity, operational policies<sup>6</sup>, on-farm program coordination, etc.). They may also be associated indirectly with other resource management considerations within the project and the watershed (i.e., recreation, fish and wildlife habitat, instream flows, wetlands, water quality, etc.).
- (c) Opportunities for *water conservation* must be evaluated on a site-specific basis through effective *water management* planning. Improvement in water management may, under site-specific circumstances, yield conserved water for alternative uses<sup>7</sup>. Districts are encouraged to pool resources and seek collaboration with other districts and organizations in addressing creative solutions to basin-wide water management issues.

- (4) **Existing Water Conservation Measures.** A description of the district's existing water conservation efforts outlines past and current district progress toward improved water management and water use efficiency. It is important to evaluate and identify how existing efforts and measures have worked in light of the district's evaluation of problems, opportunities, and goals. The description of existing water conservation measures includes measures implemented previously and results achieved.

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<sup>6</sup> Operational policies can be defined or affected by requirements of law, including statutes and court decisions/decrees.

<sup>7</sup> Uses of conserved water are subject to state water laws, federal water contract provisions, and other legal or institutional considerations.

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- (5) **Fundamental Water Conservation Measures.** While the specific mix of appropriate water conservation measures is something each district will need to determine, Reclamation recommends four "fundamental" measures as applicable to all districts' programs. These "fundamental" measures address: water measurement and accounting, water pricing, information and education, and the assignment of responsibility for conservation activities. Reclamation recommends that a water conservation plan address how the district has implemented, or could implement, each of the following four fundamental measures:
- (a) **A Water Measurement and Accounting System** designed to measure and account for the water conveyed through the district distribution system to water users.
    - (i) An effective water measurement and accounting system is a key component of a sound water conservation program. A water conservation plan provides an evaluation of the district's present water measurement and accounting system. It sets forth, as needed, the implementation of a system designed to measure and account for the volume of water conveyed through the district's water delivery and distribution system to individual water users.
    - (ii) Measurement and accounting allow the district to better match deliveries with customers' requirements and benefits users by ensuring a more accurate and equitable distribution of their water. Further, an effective water measurement and accounting system accommodates some form of volumetric pricing and billing for individual users.
    - (iii) Effective water measurement and accounting can be accomplished in various ways. Where physical measurement capability at each agricultural turnout and/or service connection is determined to be infeasible, approaches can be developed to provide individual user accountability through proratable measurement and accounting based on groups of users.
  - (b) **A Water Pricing Structure** that encourages efficiency improvements by water users.
    - (i) A district's water pricing structure can provide incentives or disincentives to efficiency improvements by water users. To encourage efficient use, a pricing and billing strategy is based, at least in part, on the quantity of water delivered. This may be accomplished in any of a number of ways.

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- (ii) The implementation of a conservation pricing strategy does not necessarily imply that a district would alter its overall revenue requirements, increase costs to users, or eliminate all present methods of recovering certain fixed costs. Quantity-based charges can be incorporated into various existing pricing structures to provide some degree of economic incentive for efficient users or groups of users.
- (iii) A water conservation plan includes an evaluation of the district's present district-to-user pricing and billing procedures, and addresses the potential for elimination, where allowed by law and contractual provisions, of any pricing structure that represents a disincentive to improvements in water use efficiency. Examples of disincentives are where:
  - 1. The unit price of water declines as the volume of water used increases.
  - 2. A fixed charge per acre or per household is assessed regardless of the quantity of water used.
- (iv) A water conservation plan also addresses the potential for providing direct incentives to encourage efficient water use, such as increasing block or tiered pricing. (An extensive discussion of incentive pricing is included in Reclamation's *Incentive Pricing Handbook for Agricultural Water Districts*.)
- (c) An **Information and Education Program** for users designed to promote increased efficiency of water use. A water conservation plan sets forth actions the district will implement to provide information to district water users about efficient water use and the water conservation services that are available through the district or other organizations. Examples of such services include irrigation system and management improvement programs, on-farm irrigation scheduling programs, real-time agricultural or residential evapotranspiration information, school and community water education programs, and technical and financial assistance programs.
- (d) A **Water Conservation Coordinator**. An effective water conservation plan identifies the person or persons responsible for development and implementation of the water conservation plan. In addition, a resolution approving the plan is adopted by the district's governing body as part of the completed plan.



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- (6) **Additional Water Conservation Measures.** A water conservation plan also evaluates other potential measures that may be suitable for improving water management and water use efficiency within the district. This evaluation is key to the water conservation planning process.
- (a) A water conservation plan identifies measures that are applicable to the water management and conservation goals that have been established by the district. The applicability and feasibility of specific measures, either individually or in combination, will depend on the particular district and its associated problems, opportunities, and goals.
  - (b) All potentially applicable water conservation measures are identified, analyzed, and evaluated to determine whether it is feasible or practical for the district to implement them, either individually or in various combinations. This evaluation of additional water conservation measures is based upon factors such as technical feasibility, quantity of water to be saved, environmental effects (positive and negative), legality under Federal and State law, and the cost and practicality of implementation.
  - (c) The following lists represent additional measures for Agricultural and Municipal and Industrial districts to consider. These lists are not intended to be all inclusive. A district is encouraged to consider these measures, and any other water conservation measures not listed below, that may be applicable to its circumstances.
    - (i) **Agricultural Water Conservation Measures.**
      - 1. **On-Farm Program Incentives.** Facilitate and/or provide financial incentives and assistance for on-farm water use efficiency improvements (e.g., lease, low interest loans, or water charge rebates for on-farm conservation measures).
      - 2. **Drought/Water Shortage Contingency Plan.** Develop a drought/water shortage contingency plan for the district that outlines policies and procedures for operation and allocation during water supply shortages.
      - 3. **Water Transfers.** Facilitate voluntary water transfers that do not unreasonably affect the district, the environment, or third parties.

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4. **Conjunctive Use.** Where appropriate, increase conjunctive use of surface and groundwater within the district, and work with appropriate entities to develop a groundwater management plan.
5. **Land Management.** Facilitate potential alternative uses for lands with exceptionally high water duties or whose irrigation contributes to significant problems (e.g., drainage that precludes attainment of water quality standards).
6. **Operational Practices and Procedures.** Evaluate potential district operational policy and institutional changes that could allow more flexibility in water delivery and carry-over storage.
7. **Distribution System Scheduling.** Implement a program of distribution system scheduling based on area-wide crop demand modeling or advanced ordering requirements.
8. **On-Farm Irrigation Scheduling.** Facilitate the delivery of crop water use and on-farm water delivery information to district customers for on-farm irrigation scheduling.
9. **Pump Efficiency Evaluations.** Coordinate the evaluation of district and private pumps with local utilities, evaluating both energy and water efficiency.
10. **Distribution Control.** Modify distribution facilities and controls to increase the flexibility of water deliveries (e.g., automate canal structures, institute variable turn off times, etc.).
11. **Reuse Systems.** Construct district operational spill reuse systems.
12. **Reduction of Conveyance Losses.** Line distribution ditches and canals or convert to pipe.
13. **Construction, Lining or Covering of Regulatory Reservoirs.** Construct, line or cover small regulatory reservoirs within the distribution system.

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### (ii) Municipal & Industrial Water Conservation Measures

1. **Residential and Governmental Audit and Incentive Programs.** Provide interior and exterior water audits and incentive programs for single-family residential, multi-family residential, and governmental/institutional customers.
  2. **Commercial and Industrial Audit and Incentive Programs.** Conduct commercial and industrial water conservation audits, water use reviews, and incentive programs.
  3. **Landscape Programs.** Provide landscape water conservation audit and incentive programs for new and existing customers.
  4. **Distribution System Audit Program.** Conduct distribution system water audits, leak detection, and repair at regular intervals.
  5. **A Drought/Water Shortage Contingency Plan.** Develop a drought/water shortage contingency plan for the district that outlines policies and procedures for operation and allocation during water supply shortages.
  6. **Wastewater Reclamation and Recycling Programs.** Design and implement wastewater reclamation and recycling programs.
  7. **Plumbing Regulations.** Enforce applicable Federal, State, and local requirements for the sale and installation of water-efficient plumbing products.
  8. **Fixture Replacement Programs.** Implement programs to retrofit low-consumption toilets and/or high-efficiency showerheads in existing buildings.
  9. **Conjunctive Use.** Where appropriate, increase conjunctive use of surface and groundwater within the district, and work with appropriate entities to develop a groundwater management plan.
- (7) **Selected Measures and Projected Results.** A water conservation plan describes the water management program to be implemented by the district. It is recommended that the four fundamental measures outlined above be addressed in all districts' programs because they provide a foundation for encouraging efficient

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water use. The program also includes existing measures that have proven to be effective and will be continued, and all other conservation measures that are determined to be feasible and practical for meeting the identified water management and conservation goals. Decision criteria and quantitative analyses supporting the district's evaluation of conservation measures are also documented in the plan. In addition to those measures to be implemented or maintained by the district, the plan addresses methods for monitoring results of these measures.

- (8) **Environmental Review.** A water conservation planning process needs to identify and evaluate the potential for environmental effects (both positive and negative) of implementing the plan. Under current Federal law, it is Reclamation's responsibility to ensure that appropriate environmental review and compliance are undertaken for major Federal actions. Although the preparation of a water conservation plan by a district is not a Federal action, and in and of itself is not subject to NEPA or ESA compliance, a water conservation plan incorporates consideration of the environmental effects of water conservation measures as a part of the planning process. If subsequent implementations of plan elements entail Federal actions, site-specific environmental review appropriate to the Federal action may be required.
- (9) **Implementation Schedule and Budget.** A water conservation plan provides a schedule and a budget for implementation of the water conservation program. An implementation schedule needs to address the sequence and allotted time for specific actions to carry out the plan. This includes the schedule for implementing each water conservation measure selected by the district, as well as a means for monitoring the performance of completed measures. Budget and staffing to be committed by the district for implementing the plan is included.